

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) An information recording apparatus for recording record information onto an information recording medium comprising at least: a first recording layer in which a first recording area can be formed, and a second recording layer which has a relative discrepancy with the first recording layer in a radial direction and in which a second recording area can be formed,

said information recording apparatus comprising:

a writing device capable of writing the record information into the first recording layer and the second recording layer;

an obtaining device for obtaining offset information which indicates the relative discrepancy;

a calculating device for calculating an address which indicates a second border point of the second recording ~~layer~~ area facing a first border point of the first recording ~~layer~~ area, on the basis of the obtained offset information; and

a controlling device for controlling said writing device to write the record information (i) to form the first recording area, with the first border point as a recording end position or a recording start position, and (ii) to form the second recording area, with the second border point which is indicated by the calculated address as a recording end position or a recording start position.

2. (original) The information recording apparatus according to claim 1, wherein

said information recording medium further comprises a management area to record therein the offset information corresponding to said information recording medium,

said obtaining device obtains the offset information by reading the offset information from the management area, and

said calculating device calculates the address which indicates the second border point, on the basis of the obtained offset information.

3. (original) The information recording apparatus according to claim 1, further comprising a storing device for storing the offset information corresponding to said information recording medium,

said calculating device calculating the address which indicates the second border point, on the basis of the stored offset information.

4. (currently amended) The information recording apparatus according to claim 1, wherein

said information recording medium comprises, as the first ~~recoding layer~~ recording area and the second recording ~~layer~~ area:

at least one of

(i) a data area to record therein the record information;

(ii) a fixed buffer area in which a radial position is fixed, which is formed by recording buffer data which is at least one portion of the record data, and which is to prevent a recording or reproduction position with respect to the first recording layer and the second recording layer from deviating to an unrecorded area; and

(iii) a variable buffer area which is located on an inner circumferential side of the fixed buffer area, which can be located adjacently to the data area, and which is variable-length, and which is to prevent the recording or reproduction position from deviating to the unrecorded area,

said calculating device calculates an address which indicates a second outer circumferential end of the variable or fixed buffer area in the second recording layer, facing a first outer circumferential end of the variable or fixed buffer area in the first recording layer, on the basis of the obtained offset information and a data amount of the variable or fixed buffer area, and

said controlling device controls said writing device to write the buffer data until the first outer circumferential end, as well as from the second outer circumferential end, in response to a finalize instruction to said information recording medium.

5. (currently amended) The information recording apparatus according to claim 1, wherein

said information recording medium comprises, as the first ~~recording layer~~ recording area and the second recording ~~layer~~ area:

at least one of

(iv) a fixed calibration area in which a radial position is fixed, and in which data for test writing, which is one portion of the record information, can be recorded in order to obtain an optimum recording power of laser light for recording; and

(v) a variable calibration area which is located on an inner circumferential side of the fixed calibration area, which can be located adjacently to the data area, and which is variable-length, and in which the data for test writing can be recorded

said calculating device calculates an address which indicates a second inner circumferential end of the variable or fixed calibration area in the second recording layer, facing a first inner circumferential end of the variable or fixed calibration area in the first recording layer, and calculates an address which indicates a fourth outer circumferential end of the variable or fixed calibration area in the second recording layer, facing a third outer circumferential end of the variable or fixed calibration area in the first recording layer, on the basis of the obtained offset information and a data amount of the variable or fixed calibration area, and

said controlling device controls said writing device to write the data for test writing into a section from the first inner circumferential end to the third outer circumferential end, as well as into a section from the second inner circumferential end to the fourth outer circumferential end, in response to an instruction for obtaining the optimum recording power to said information recording medium.

6. (original) The information recording apparatus according to claim 4, wherein said controlling device controls said writing device to write the record information while the variable or fixed calibration area is located on an outer circumferential side of the variable or fixed buffer area.

7. (original) The information recording apparatus according to claim 6, further comprising a judging device for judging whether or not the outer circumferential end of variable calibration area can be located on an inner circumferential side of the inner circumferential end of the fixed buffer area, on the basis of the obtained offset information and the data amount of the variable buffer area and variable calibration area,

said controlling device (i) controlling said writing device, to write the record information while the variable buffer area and the variable calibration area are located on the inner circumferential side of the fixed buffer area and the fixed calibration area if it is judged that the outer circumferential end of variable calibration area can be located by said judging device, and (ii) controlling not to dispose the variable buffer area and the variable calibration area if it is not judged that the outer circumferential end of variable calibration area can be located.

8. (original) The information recording apparatus according to claim 7, further comprising a spare capacity calculating device for calculating a spare capacity of a space area from the outer circumferential end of the variable calibration area to the inner circumferential end of the fixed buffer area,

said controlling device controlling said writing device to write the record information while (i) one portion of the calculated spare capacity is distributed into the variable buffer area, and (ii) another portion of the calculated spare capacity is distributed into the variable calibration area.

9. (original) The information recording apparatus according to claim 4, wherein said controlling device controls said writing device to write the buffer data while the inner circumferential end of the variable or fixed buffer area in the second recording layer is located on the inner circumferential side of the inner circumferential end of the variable or fixed buffer area in the first recording area.

10. (currently amended) An information recording method in an information recording apparatus comprising a writing device capable of writing record information into a first recording layer and a second recording layer, onto an information recording medium comprising at least: the first recording layer in which a first recording area can be formed, and the second recording layer which has a relative discrepancy with the first recording layer in a radial direction and in which a second recording area can be formed,

said information recording method comprising:

an obtaining process of obtaining offset information which indicates the relative discrepancy;

a calculating process of calculating an address which indicates a second border point of the second recording ~~layer~~ area facing a first border point of the first recording area ~~layer~~, on the basis of the obtained offset information; and

a controlling process of controlling said writing device to write the record information (i) to form the first recording area, with the first border point as a recording end position or a recording start position, and (ii) to form the second recording area, with the second border point which is indicated by the calculated address as a recording end position or a recording start position.



11. (currently amended) A computer readable recording medium recording thereon a computer program product in a computer readable medium for tangibly embodying a program of instructions executable by a computer provided for an information recording apparatus, said computer program product making the computer function as at least one of a writing device, a obtaining device, a calculating device, and a controlling device,

said information recording apparatus for recording record information onto an information recording medium comprising at least: a first recording layer in which a first recording area can be formed, and a second recording layer which has a relative discrepancy with the first recording layer in a radial direction and in which a second recording area can be formed,

said information recording apparatus comprising:

said writing device capable of writing the record information into the first recording layer and the second recording layer;

said obtaining device for obtaining offset information which indicates the relative discrepancy;

said calculating device for calculating an address which indicates a second border point of the second recording ~~area-layer~~ facing a first border point of the first recording ~~layer~~area, on the basis of the obtained offset information; and

said controlling device for controlling said writing device to write the record information (i) to form the first recording area, with the first border point as a recording end position or a recording start position, and (ii) to form the second recording area, with the second border point which is indicated by the calculated address as a recording end position or a recording start position.

12. (previously presented) An information recording apparatus for recording buffer data onto an information recording medium comprising at least: a first recording layer in which a first shifted middle area can be formed, and a second recording layer which has a relative discrepancy with the first recording layer in a radial direction and in which a second shifted middle area can be formed,

said information recording apparatus comprising:

a writing device capable of writing the buffer data into the first recording layer and the second recording layer;

an obtaining device for obtaining offset information which indicates the relative discrepancy;

a calculating device for calculating an address which indicates a second border point of the second shifted middle area facing a first border point of the first shifted middle area, on the basis of the obtained offset information; and

a controlling device for controlling said writing device to write the buffer data (i) to form the first shifted middle area, with the first border point as an outer circumferential end, and (ii) to form the second shifted middle area, with the second border point which is indicated by the calculated address as an outer circumferential end.

13. (previously presented) An information recording method in an information recording apparatus comprising a writing device capable of writing buffer data into a first recording layer and a second recording layer, onto an information recording medium comprising at least: the first recording layer in which a first shifted middle area can be formed, and the second recording layer which has a relative discrepancy with the first recording layer in a radial direction and in which a second shifted middle area can be formed,

said information recording method comprising:

an obtaining process of obtaining offset information which indicates the relative discrepancy;

a calculating process of calculating an address which indicates a second border point of the second shifted middle area facing a first border point of the first shifted middle area, on the basis of the obtained offset information; and

a controlling process of controlling said writing device to write the buffer data (i) to form the first shifted middle area, with the first border point as an outer circumferential end, and (ii) to form the second shifted middle area, with the second border point which is indicated by the calculated address as an outer circumferential end.

14. (previously presented) An information recording apparatus for recording an OPC (Optimum Power Control) pattern onto an information recording medium comprising at least: a first recording layer in which a first flexible ODTA (Outer Disc Testing Area) can be formed, and a second recording layer which has a relative discrepancy with the first recording layer in a radial direction and in which a second flexible ODTA can be formed,

said information recording apparatus comprising:

a writing device capable of writing the OPC pattern into the first recording layer and the second recording layer;

an obtaining device for obtaining offset information which indicates the relative discrepancy;

a calculating device for calculating an address which indicates a second border point of the second flexible ODTA facing a first border point of the first flexible ODTA, on the basis of the obtained offset information; and

a controlling device for controlling said writing device to write the OPC pattern (i) to form the first flexible ODTA, with the first border point as an outer circumferential end, and (ii) to form the second flexible ODTA, with the second border point which is indicated by the calculated address as an outer circumferential end.

15. (previously presented) An information recording method in an information recording apparatus comprising a writing device capable of writing an OPC (Optimum Power Control) pattern into a first recording layer and a second recording layer, onto an information recording medium comprising at least: the first recording layer in which a first flexible ODTA (Outer Disc Testing Area) can be formed, and the second recording layer which has a relative discrepancy with the first recording layer in a radial direction and in which a second flexible ODTA can be formed,

said information recording method comprising:

an obtaining process of obtaining offset information which indicates the relative discrepancy;

a calculating process of calculating an address which indicates a second border point of the second flexible ODTA facing a first border point of the first flexible ODTA, on the basis of the obtained offset information; and

a controlling process of controlling said writing device to write the OPC pattern (i) to form the first flexible ODTA, with the first border point as an outer circumferential end, and (ii) to form the second flexible ODTA, with the second border point which is indicated by the calculated address as an outer circumferential end.